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WORK PLAN TO COMPLETE ADDITIONAL SITE CHARACTERIZATION ACTIVITIES AND TO REMOVE A BURIED PIPELINE AT THE YELLOW PARCEL IN THE RENAISSANCE PARK COMMERCIAL DEVELOPMENT

Prepared For:

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June 25, 1998
4013-96000

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1.0 INTRODUCTION

Liberty Property Trust (LPT) is interested in purchasing Lots 45 through 60 (herein referred to as the Yellow Parcel) in the Renaissance Park commercial development in Upper Merion Township, Montgomery County, PA. A site map showing the layout of the Yellow Parcel is provided as Figure 1. As part of their potential purchase of the property, LPT retained Penn Environmental & Remediation, Inc. (Penn E&R) to complete a site characterization on the Yellow Parcel. During this site characterization, Penn E&R encountered a 4-inch steel buried pipeline on the west side of a dirt access road which traverses the west-central portion of the Yellow Parcel. The pipeline runs the entire length of the dirt access road and appears to exit the Yellow Parcel near the southwest corner of the property just north of Quarry No. 3 on the adjacent Crater Resources Superfund Site (CRSS). This buried pipeline appears to follow the course of, and to have been located directly beneath, an aboveground pipeline which was reportedly located in this area. The anticipated location of these pipelines is shown on Figure 1.

To ensure that the presence/former presence of these pipelines (above and below ground) has not impacted adjacent soils, Penn E&R collected ten surface soils samples along the location of the former aboveground pipeline (YSS-1 through YSS-10) and eleven subsurface soil samples from the beneath the buried pipeline (YUP-1 through YUP-11). The surface soil samples generally consisted of soils from 3 to 12-inches below the ground surface (BGS) and the subsurface soil samples were collected 6-inches below the bottom of the buried pipeline from a depth of between 2 and 3.5 feet BGS. Each of the soil samples was analyzed for the Target Compound List (TCL) polynuclear aromatic hydrocarbons (PAHs) and the Target Analyte List (TAL) inorganics (i.e., metals and cyanide). The locations at which the samples were collected are shown on Figure 2 and the results of the analysis of these samples are summarized in Tables 1 through 3, a copy of which are included in Appendix A.

There is a drainage swale located in the central portion of the Yellow Parcel. Water which collects in this swale drains essentially west to east and exits the site in the southeast corner of the property. There is also a wet area located at the southern end of the dirt access road. To ensure that sediments in the swale and wet area had not been impacted by possible releases from the pipeline(s), Penn E&R collected fifteen sediment samples (Sed-1 through Sed-15) from the swale at the approximate locations shown on Figure 2. Each of the sediment samples was analyzed for the TCL PAHs and the TAL inorganics. The locations at which the samples were collected are shown on Figure 2 and the results of the analysis of these samples are summarized in Table 4, a copy of which is included in Appendix A.

The analytical data summarized in the Tables 1 through 4 in Appendix A were compared to applicable non-residential Medium Specific Concentrations (MSC) soil cleanup standards developed by the Pennsylvania Department of Environmental Protection (PADEP) pursuant to the Land Recycling and Environmental Remediation

Standards Act (Act 2) and Risk-Based Concentrations (RBCs) developed by the United States Environmental Protection Agency (USEPA).

A review of Appendix A reveals that a few of the soil and sediment samples displayed various compounds, particularly the PAHs, above their USEPA RBCs. Of these samples, only surface soil sample YSS-10 and subsurface soil samples YUP-4, YUP-7, and YUP-10 displayed any compounds of concern above applicable PADEP MSCs. Based on these results, additional limited sampling is required to delineate the extent of the elevated contaminant levels detected at selected sample locations.

This Work Plan (WP) outlines additional soil sampling which will be implemented at the Yellow Parcel in an effort to delineate elevated contaminant levels detected in soil/sediment samples previously collected at the site. The WP also outlines the Risk Analysis activities which will be implemented to determine what, if any, remediation of soils/sediments may be required, and the procedures which will be implemented as part of the removal of the buried pipeline encountered at the site.

The WP has been divided into six primary sections. Section 1.0 includes this Introduction. Section 2.0 outlines the additional soil and sediment sampling which is proposed for implementation at the site and includes a discussion of the data analysis and validation procedures which will be implemented upon completion of this sampling. Section 3.0 outlines the Risk Analysis activities which will be implemented in an effort to evaluate potential human health concerns, if any, which may exist at the site. The results of the risk analysis will also be used to determine what, if any, remediation of the soils/sediments may be required. The procedures which will be implemented in evaluating remedial alternatives, if required, are discussed in Section 4.0. Section 5.0 outlines the specific activities that will be implemented as part of the removal of the buried pipeline and the report which will be generated upon completion of the aforementioned activities is discussed in Section 6.0.

2.0 ADDITIONAL SOIL SAMPLING ACTIVITIES

2.1 Task 1 - Soil Sampling and Analysis

As indicated earlier, three subsurface soil samples collected beneath the buried pipeline (YUP-4, YUP-7, and YUP-10) and one surface soil sample collected in the area of the former aboveground pipeline (YSS-10), exhibited contaminants of concern (COC) above both USEPA RBCs and PADEP MCSs. Therefore, additional sampling will be completed in these areas in an effort to delineate the extent of the elevated COC. The sample results obtained during these additional sampling efforts will be used, along with the existing soil and sediment sample results, during the Risk Analysis to determine what, if any, remediation may be required. No additional sampling is currently proposed at sample locations where COC were only detected above applicable RBCs. However, the results of the Risk Analysis will be used to confirm that no additional sampling or remediation is required at these locations.

At surface soil sample location YSS-10, four additional surface soil samples, designated YSS-10A through YSS-10D, will be collected at the approximate locations shown on Figure 3. Of these, three will be collected around the perimeter and about 10 feet out from former sample location YSS-10. These samples will consist of soils from 3 to 12-inches below the ground surface (BGS). The fourth sample will be collected 2 feet below and from a point located directly beneath former sample location YSS-10. These samples will be collected using a decontaminated stainless steel bucket auger. Each of the samples will be analyzed for the Target Compound List (TCL) polynuclear aromatic hydrocarbons (PAHs).

Three additional soil samples will be collected at previous subsurface sample locations YUP-4 and YUP-7. These samples, designated YUP-4A through YUP-4C and YUP-7A through YUP-7C, will be collected at the approximate locations shown on Figure 3. Of the three additional samples collected at each location, one will be obtained 10 feet topographically downgradient and one will be collected 10 feet topographically upgradient of previous sample location YUP-4 and YUP-7. These samples will be collected from points located directly beneath the buried pipeline. The third sample at these two locations will be collected 2 feet below and from a point directly adjacent to the former sample locations. These samples will be collected using a decontaminated stainless steel bucket auger. Each of the samples will be analyzed for the TCL PAHs. In addition, the three samples collected adjacent to former sample location YUP-4 will also be analyzed for the metal arsenic.

During the original sampling activities, only a limited number of surface soil samples and no subsurface soil samples were collected in the wet area located in the southwest portion of the site (see Figure 1). Therefore, and to ensure that soils in this area have not been impacted, six subsurface soil samples (YUP-12 through YUP-17) will be collected from beneath the pipeline in this area at the approximate locations shown on Figure 3. At three of these six subsurface sample locations, a surface soil sample will also be

collected. These surface soil samples will be collected at locations YUP-12, YUP-14, and YUP-16 and will be designated YSS-11 through YSS-13. Two surface soil samples (YSS-15 and YSS-16) will also be collected about 10 feet northwest of the former pipeline. The subsurface soil samples will consist of soils obtained directly beneath the buried pipeline and the surface soil samples will consist of soils from 3 to 12-inches BGS. These samples will be collected using a decontaminated stainless steel bucket auger. Each of the samples obtained from this area will be analyzed for the TCL PAHs.

At former subsurface sample location YUP-10, a backhoe will be used to install four test trenches around the perimeter of this previous sample location (see Figure 3). Each of the test trenches will be excavated using a backhoe. The test trenches will extend out away from this former sample location at least 10 feet and will be excavated to a depth of 5 feet. Two soil sample stations will be established in each test trench. The first sample station will be located 5 feet out from the former sample location YUP-10 and the second will be established 10 feet out. At each sample station, samples will be collected at 1-foot intervals to the bottom of the test trench. Each sample will be visually inspected for signs of contamination and screened with a photoionization detector (PID) for the presence of volatile organic vapors.

To confirm the field screening results, at least one sample from each test trench will be selected for analysis. The samples selected for analysis will be those samples which display the highest PID readings. If no elevated PID readings are encountered, the sample obtained from a depth of 5 feet BGS at the first sample station in each test trench will be selected for analysis. The samples will be collected using a decontaminated stainless steel bucket auger and will be analyzed for the TCL PAHs. Upon completion of these activities, the test trenches will be backfilled with the excavated material.

No COC were detected in any of the sediment samples above applicable PADEP MSCs. However, the COC were generally detected at the highest concentration in sediment sample Sed-5. Some of the COC were detected above USEPA RBC. Therefore and to ensure that the presence of these compounds at current concentrations do not present an unacceptable risk, three additional sediment samples (Sed-5A through Sed-5C) will be collected from this area. Of these, two will be collected around the perimeter (i.e., one upstream and one downstream) and about 10 feet out from previous sample location Sed-5. The third sample will be collected 2 feet below and from a point located directly beneath former sample location Sed-5. Each of the samples will be analyzed for the TCL PAHs.

At the request of the USEPA, Penn E&R will also install two test trenches in the area where the buried pipeline is believed to cross under the dirt access road near the southwest corner of the property. The primary objective for installing these test trenches is to ensure that the pipeline in this area does not branch to the east or west. Both test trenches will be installed so that they parallel the northeast/southwest trend of the pipeline. Of the two test trenches, one will be installed on the east side and the other will be installed on the west side of the pipeline. The test trenches will be excavated to a

depth of 5 feet BGS. Upon completion, the test trenches will be backfilled with the excavated material.

For Quality Assurance/Quality Control purposes (QA/QC), field rinsate blanks, blind duplicates, and site-specific matrix spikes and spike duplicates will be generated at a frequency of one per twenty environmental samples collected. These QA/QC samples will also be analyzed for the TCL PAHs. All samples will be analyzed by the American Environmental Network Laboratory (AEN) located in Whippany, NJ. AEN's Whippany, NJ facility is a Contract Laboratory Program (CLP) approved laboratory. The samples will be analyzed in accordance with and following all appropriate USEPA CLP protocols. Data deliverables will be submitted in the CLP format.

The samples collected during these additional sampling activities will be removed from the bucket auger and placed into a decontaminated stainless steel mixing bowl. The samples will then be thoroughly homogenized using a decontaminated stainless steel sampling spoon. The samples will then be transferred into 8 ounce wide mouth glass jars with Teflon-lined lids. A sample tag will be placed on each container. After the sample tag is secured, a signed and dated custody seal will be placed over the lid of each sample container. The samples will then be placed directly into a cooler and cooled to 4 degrees Celsius. A chain-of-custody record form will be completed, placed in a plastic bag and taped to the top of the cooler. The cooler will then be taped shut and custody seals will be placed over lid openings. The cooler will be shipped overnight express to the contract laboratory.

Prior to and between each use, all soil sample equipment will be decontaminated following the procedures listed below:

- Wash equipment thoroughly with laboratory detergent and potable water using a brush
- Rinse equipment thoroughly with potable water
- Rinse equipment thoroughly with deionized water
- Rinse equipment with a 10 percent nitric acid solution
- Rinse equipment with deionized water.
- Rinse equipment with methanol
- Rinse with deionized water and allow equipment to air dry as long as possible
- Wrap with aluminum foil

The methanol used in the decontamination process will be containerized in a shallow aluminum bowl and allowed to evaporate into the atmosphere. The remaining decontamination water will be containerized in a 55-gallon drum. The final disposition of this water will be determined after the soil sample results have been obtained and reviewed.

2.2 Task 2 - Data Analysis and Validation Procedures

2.2.1 Data Validation

In order to ensure that the samples obtained during Task 1 were analyzed according to contract laboratory protocols (CLP), twenty five percent of the samples will be subjected to a formal validation procedure. Validation of the CLP data will be conducted in general accordance with the USEPA National Functional Guidelines for Organic and Inorganic Analysis. The primary objective of these validation efforts will be to verify that laboratory instrument performance and calibration procedures, internal QA/QC analyses, documentation and chain-of-custody procedures conform to CLP methods to produce precise, reproducible and reliable analytical data. All data will be appropriately flagged and data qualifiers will be discussed and explained.

2.2.2 Data Analysis

Upon completion of the validation activities, Penn E&R will tabulate the soil sample results and develop appropriate site maps showing all sample locations. The sample results will be compared to USEPA RBCs and PADEP MSCs.

3.0 RISK ANALYSIS

Upon completion of the data validation and analysis activities discussed in Section 2.0, a focused Risk Analysis will be completed. The Risk Analysis will address the potential human health effects associated the site under the no-action alternative. The Risk Analysis will be based on the USEPA document entitled " Risk Assessment Guidance for Superfund, Volume I, Interim Final," dated December 1989. The four primary components of the Risk Analysis will include Contaminant Characterization; Exposure Assessment; Toxicity Assessment; and Risk Characterization.

As part of the Contaminant Characterization, Penn E&R will develop a list of potential contaminants of concern (COC). The COCs will include those compounds identified during the data analysis activities to be present in the soil at levels which exceed USEPA RBCs and/or PADEP MSCs. During the Exposure Assessment, actual or potential routes of human exposure will be identified and the likely magnitude of exposure to the receptors will be characterized by constructing exposure scenarios. Each exposure scenario will identify the source of contamination, the route of transport, possible receptors, and the likely routes of exposure. Chemical intakes for each exposure scenario will be estimated based on frequency and duration of exposure and rate of media uptake.

As part of the Toxicity Assessment, toxicity values (e.g., reference doses and slope factors) will be developed that will be used to estimate the incidence of adverse effects occurring in humans at different exposure levels. These toxicity values will be used during the Risk Characterization to estimate the likelihood of adverse effects occurring in humans at varying exposure levels. During the Risk Characterization, the toxicity and exposure assessments will be summarized and integrated into quantitative and qualitative expressions of risk. The ultimate objectives of the Risk Characterization will be to identify those potential COC, if any, which present a human health concern and to develop remediation standards for those COC that present a risk.

4.0 ENGINEERING EVALUATION/COST ANALYSIS

If the Risk Analysis indicates that an unacceptable risk to human health exists at the site, an Engineering Evaluation/Cost Analysis (EE/CA) will be completed. As part of the EE/CA, general response actions will be identified and evaluated. Currently, the general response actions identified for this site include No Action, Institutional Controls, Containment, and Removal/Disposal. The Removal/Disposal general response action may only be feasible for limited quantities of impacted soil.

Remedial technologies and associated process options for each of the general response actions will then be identified and evaluated. The remedial technologies and associated process options which currently appear to be the most appropriate for this site and which will be considered in the EE/CA are:

General Response Action	Remedial Technology	Process Options
No Action	None	None
Institutional Controls	Deed Restrictions Fencing Zoning Modifications	None
Containment	Capping	Asphalt or Other Appropriate Cover Concrete Foundations Soil Cover
Removal/Disposal	Off-site Disposal	Landfilling Recycling

The remedial technologies which have been identified will be combined into potential remedial alternatives. These remedial alternatives will then be screened on the basis of effectiveness, protection to human health, implementability, compliance with remediation standards, and cost. Based on this comparison, a final remedial alternative will be selected by LPT.

5.0 PIPE REMOVAL ACTIVITIES

This Section of the WP outlines the specific activities which will be implemented as part of the removal of the portion of the buried pipeline located beneath the Yellow Parcel. The pipe removal activities will be implemented upon completion of the Risk Analysis and EE/CA discussed in Sections 3.0 and 4.0, respectively. The location of the buried pipeline is shown on Figure 1. The pipeline is located from 1 to 3 feet below the ground surface and is 4-inches in diameter and constructed of steel. Based on previous investigations completed adjacent to this pipeline, the pipe is empty.

5.1 Permits

LPT is currently in the process of determining whether there are any wetlands located on the Yellow Parcel. If wetlands are determined to be present in the area of the buried pipeline, all appropriate permits necessary to work in a wetland area will be obtained. Also, Penn E&R will obtain all other necessary permits from appropriate local, state, and federal regulatory agencies prior to the initiation of the pipe removal activities.

5.2 Removal and Cleaning

Prior to initiating the removal activities, the area which is encompassed by the pipeline will be roped off to prevent entry by any unauthorized personnel. Also, all required erosion and sedimentation control devices will be installed. After properly securing the area, a trackhoe will be used to uncover the top and both sides of the pipe. The entire length of the pipeline will be uncovered. All excavated soil will be visually inspected for signs of contamination and will be screened with a photoioization detector (PID) for the presence of volatile organic vapors. Ambient air will also be monitored with a PID throughout the removal activities. All excavated soil will be placed directly on plastic sheeting.

After the pipeline has been uncovered, it will be visually inspected for signs of corrosion and pitting. Penn E&R will also visually inspect the soils adjacent to and beneath the pipe for signs of contamination and leakage. Penn E&R will then screen the soils at 20-foot intervals with a PID for the presence of volatile organic vapors. The locations selected for screening with the PID will generally correspond with the flanged joints of the pipe which appear to be spaced every 20 feet.

Before removing the pipe, Penn E&R will cap the end of the line located adjacent to the CRSS property. The pipeline does not run under Renaissance Boulevard. Therefore, a cap at this end of the pipeline will not be required. Capping the pipe adjacent to the CRSS property will ensure that any liquids which could be present in other sections of the pipeline do not flow back into the portion of the line which is being removed. The capping will be completed by carefully loosening and then placing a blank between the appropriate flanged joints at the end of the pipeline. Prior to installing the blank, a shallow depression will be excavated beneath the joint to be capped. The depression will be lined with plastic. Any liquids that may escape from the pipeline during the capping process will be contained in this plastic lined depression. A large

capacity pump will be used to remove any liquids that may accumulate in the depression. This liquid will be pumped directly into a temporary 1,000-gallon aboveground storage tank (AST).

After the pipeline has been appropriately capped, the pipe removal activities will be initiated. The pipe will be removed in 20-foot sections starting at the highest point along the pipeline. Appropriate precautions will be taken to ensure that any liquid present in the pipeline is collected and pumped directly into the temporary AST. Each 20-foot section removed will be placed directly onto plastic sheeting and visually inspected for signs of corrosion. The soils beneath the pipeline will also be visually inspected for signs of contamination and screened for the presence of volatile organics using a PID.

Any solids present in the pipe will be removed and placed directly into 55-gallon drums. The inside of the pipe will then be cleaned using a power washer and a water and citri klean solution. All washwater will be collected and containerized in the temporary AST. This process will be continued until the entire length of the pipeline located beneath the Yellow Parcel has been removed.

5.3 Post-Excavation Sampling

With the completion of the additional sampling discussed in Section 2.0, a total of sixteen soil samples, approximately 1 per 50 linear feet of pipe, will have been collected from directly beneath the pipeline. Therefore and unless the risk analysis suggests otherwise, Penn E&R does not currently anticipate the need to obtain any additional post-excavation samples from beneath the pipeline.

5.4 Equipment Decontamination

The trackhoe and any other heavy equipment used during the pipe removal activities will be decontaminated prior to leaving the site. As part of the decontamination process, all soil will be removed and the equipment will be cleaned with a power washer. All wash water will be collected and containerized in the temporary tank.

All hand held soil sampling equipment will be decontaminated in accordance with the following procedures presented in Section 2.1 of this WP.

5.5 Waste Characterization and Disposal

After being properly cleaned, the pipe will be shipped to a scrap yard for recycling. A sample of the liquid stored in the temporary AST, which will include wash and decontamination water and any liquid removed from the pipe, and a sample of any solids removed from the pipe, will be collected and analyzed for characterization purposes. After receiving these results, an appropriate disposal facility will be selected. All appropriate disposal documentation will be completed and submitted for approval. After receiving approval, the material will be transported to the selected facility for disposal/recycling.

6.0 REPORT PREPARATION

Penn E&R will develop a Final Report. This report will include a detailed discussion of all previous site investigations, the activities implemented as part of additional soil sampling and the pipe removal activities, the results of these and previous site activities, and any conclusions and recommendations drawn from these results. A detailed discussion of the results of the Risk Analysis and the EE/CA, if required, will also be included in the report. All analytical data will be properly tabulated and appropriate site maps will be developed which will show the former location of the pipeline and all sample locations.

Two (2) copies of the report will be submitted to the USEPA for comment.

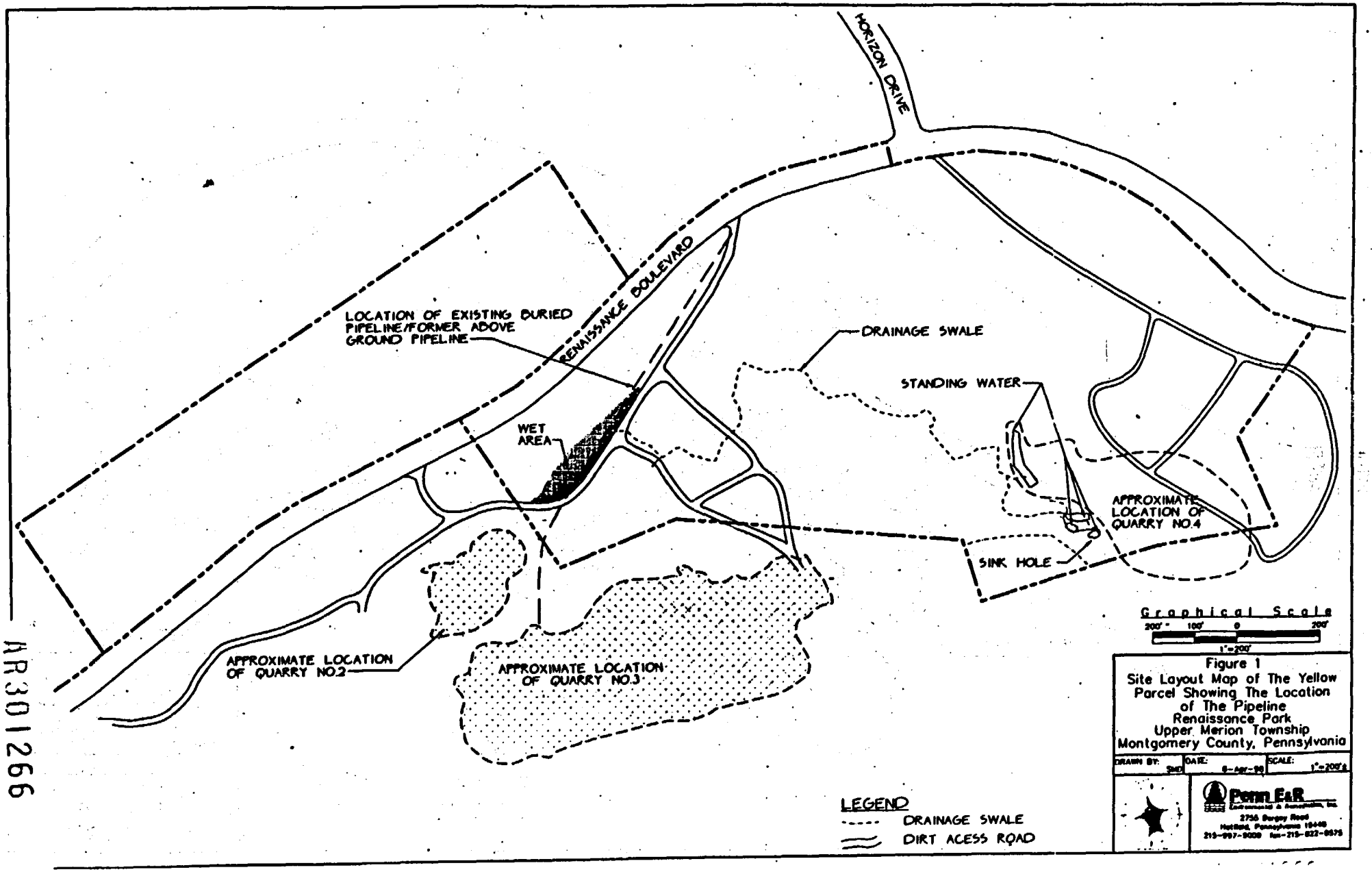

Figure 1
Site Layout Map of The Yellow Parcel Showing The Location of The Pipeline
Renaissance Park
Upper Merion Township
Montgomery County, Pennsylvania

DRAWN BY: SMD | DATE: 6-Apr-98 | SCALE: 1"=200'±

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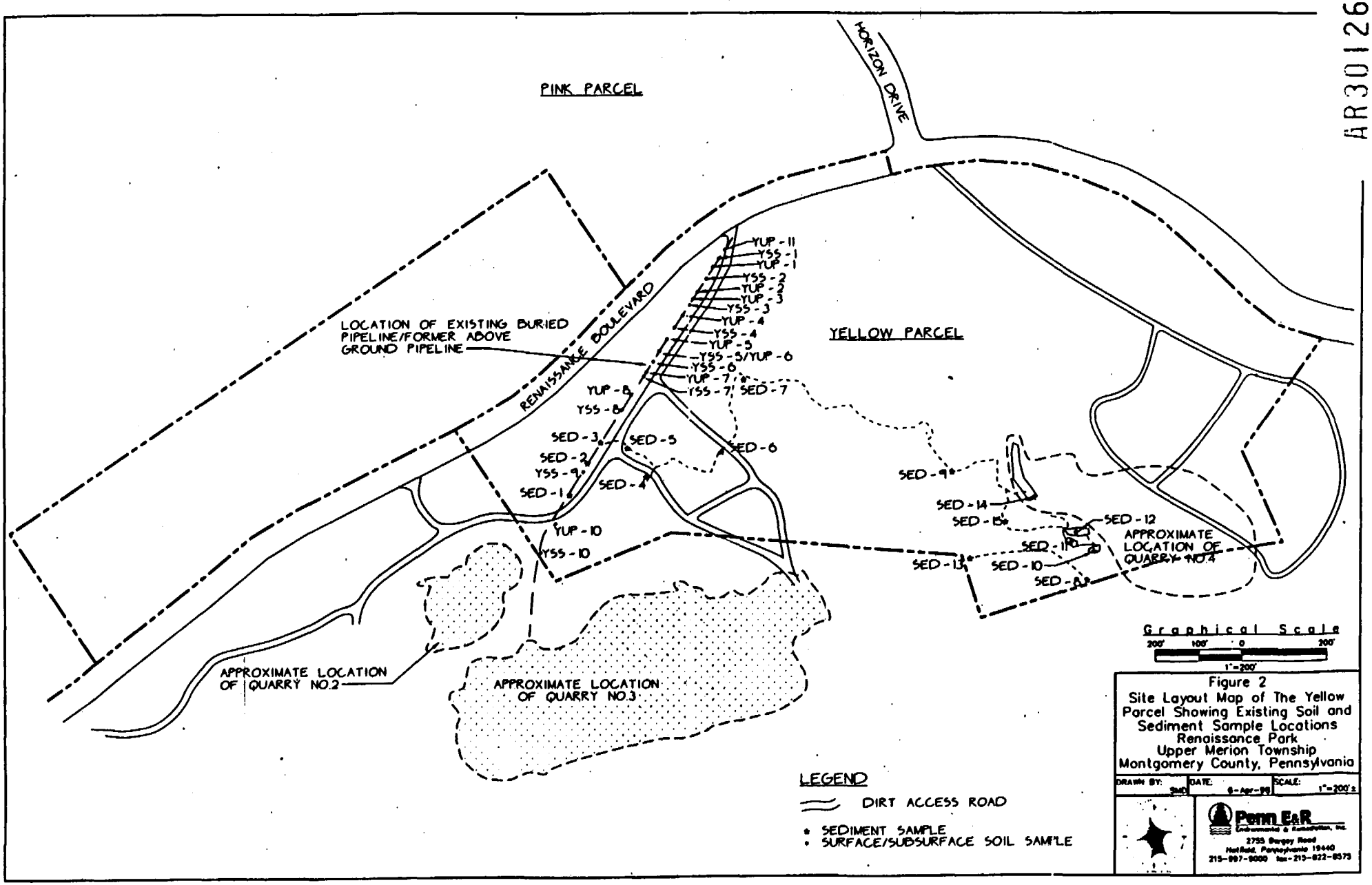

Figure 2
Site Layout Map of The Yellow Parcel Showing Existing Soil and Sediment Sample Locations
Renaissance Park
Upper Merion Township
Montgomery County, Pennsylvania

DRAWN BY:	DATE:	SCALE:
SMD	6-Apr-99	1"=200'±

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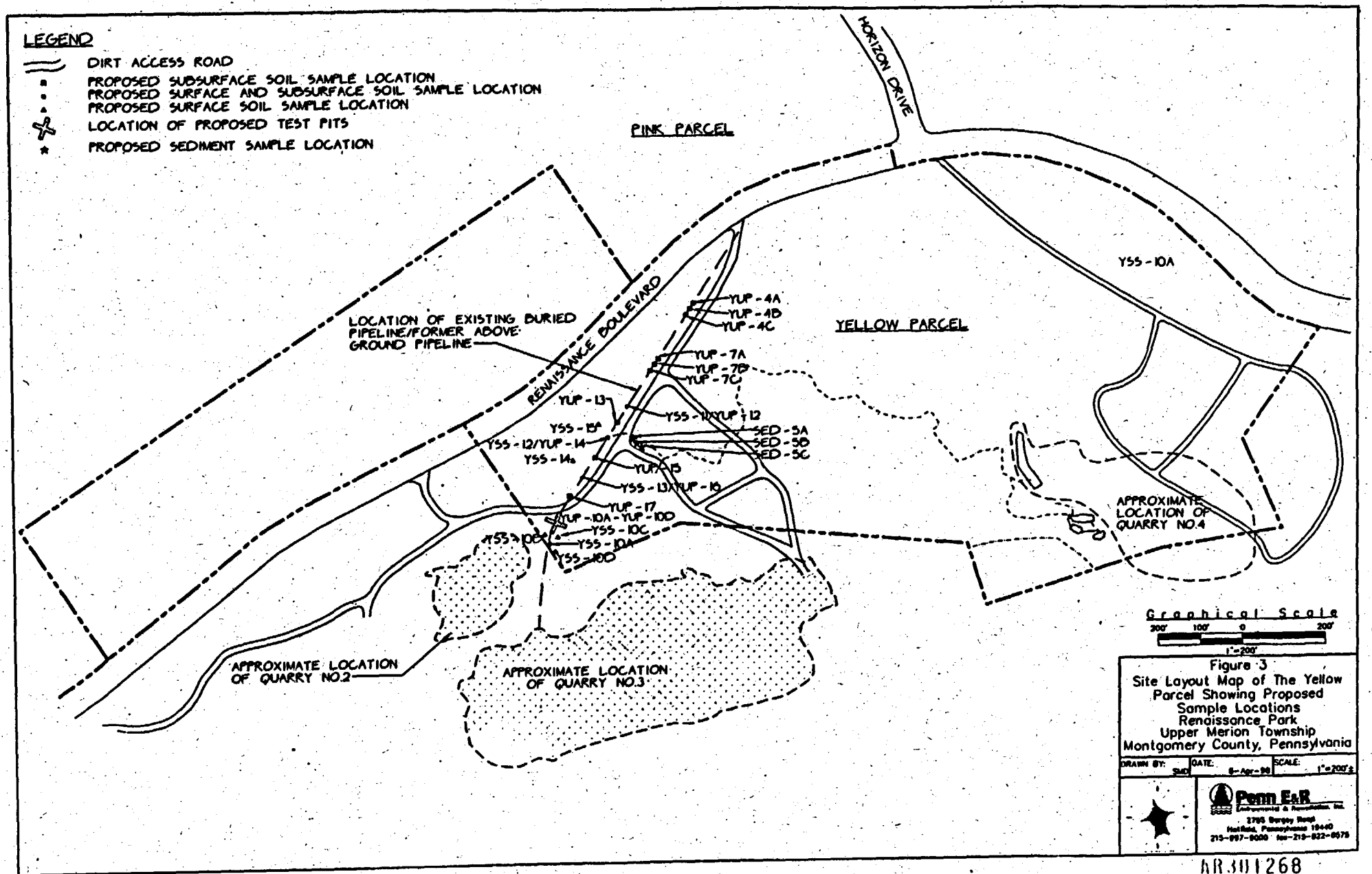
LEGEND
DIRT ACCESS ROAD
PROPOSED SUBSURFACE SOIL SAMPLE LOCATION
PROPOSED SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION
PROPOSED SURFACE SOIL SAMPLE LOCATION
LOCATION OF PROPOSED TEST PITS
PROPOSED SEDIMENT SAMPLE LOCATION
HORIZON DRIVE
PINK PARCEL
YELLOW PARCEL
RENAISSANCE BOULEVARD
LOCATION OF EXISTING BURIED PIPELINE/FORMER ABOVE GROUND PIPELINE
YSS-10A
YUP-4A
YUP-4B
YUP-4C
YUP-7A
YUP-7B
YUP-7C
YUP-13
YSS-11/YUP-12
YSS-15
YSS-12/YUP-14
YSS-14
SED-5A
SED-5B
SED-5C
YUP-15
YSS-13/YUP-16
YUP-17
YUP-10A
YUP-10B
YSS-10C
YSS-10A
YSS-10B
YSS-10D
APPROXIMATE LOCATION OF QUARRY NO.4
APPROXIMATE LOCATION OF QUARRY NO.2
APPROXIMATE LOCATION OF QUARRY NO.3
Graphical Scale
200' 100' 0 200'
1"=200'
Figure 3
Site Layout Map of The Yellow Parcel Showing Proposed Sample Locations
Renaissance Park
Upper Merion Township
Montgomery County, Pennsylvania
DRAWN BY: SMD
DATE: 6-Apr-98
SCALE: 1"=200's
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APPENDIX A

TABLE 1

SUMMARY OF ANALYTICAL RESULTS FOR
SURFACE SOIL SAMPLES COLLECTED ALONG THE PIPE LINE ON THE YELLOW PARCEL

ANALYTICAL PARAMETERS	SAMPLE DESIGNATION/ANALYTICAL RESULTS										PADEP MSC[2]	USEPA RBC
	YSS-1	YSS-2	YSS-3	YSS-4	YSS-5	YSS-6	YSS-7	YSS-8	YSS-9	YSS-10		
PAHs:												
Acenaphthene	<0.38	<0.43	0.062J	<0.42	0.061J	0.15J	<0.43	<0.44	<0.47	<0.44	4,300	570[3]
Acenaphthylene	0.59	0.29J	1.1	<0.42	1.0	1.9	0.17J	0.66	0.57	1.6	4,400	NSA
Anthracene	0.33J	0.17J	0.75	<0.42	1.1	2.6	0.14J	0.37J	0.69	1.9	230	12,000[3]
Benzo(a)anthracene	1.6	0.77	2.1	<0.42	4.3D	8.2D	0.65	1.4	2.7	16.0D	110	2.0[3]
Benzo(b)fluoranthene	2.6	1.4	4.1D	0.052J	5.9D	10.0D	0.74	3.0	2.6	27.0D	110	5[3]
Benzo(k)fluoranthene	0.92	0.28J	1.0	<0.42	1.8	2.8JD	0.18J	0.94	0.79	6.3JD	600	49[3]
Benzo(g,h,i)perylene	0.32J	0.29J	0.66	0.091J	0.38J	0.78	0.19J	0.39J	0.36J	2.2	180	NSA
Benzo(a)pyrene	1.6	0.73	2.6	<0.42	2.9	7.7D	0.40J	1.5	1.4	21.0D	11	0.78[4]
Chrysene	1.3	0.61	1.7	<0.42	2.7	7.1D	0.52	1.1	2.4	15.0D	220	160[3]
Dibenzo(a,h)anthracene	0.077J	0.048J	0.084J	<0.42	0.066J	0.12J	<0.43	0.08J	0.057J	0.22J	11	0.78[4]
Fluoranthene	1.4	0.95	2.6	<0.42	1.2	17.0D	0.93	1.4	2.8	31.0D	3,300	4,300[3]
Fluorene	<0.38	0.047J	0.45	<0.42	0.51	1.6	0.056J	0.064J	0.17J	0.35J	380	560[3]
Indeno(1,2,3-cd)pyrene	0.58	0.41J	1.0	<0.42	0.60	1.1	0.16J	0.62	0.60	3.0	110	7.8[4]
Naphthalene	0.045	<0.43	1.8	0.072J	0.22J	0.4J	0.086J	0.17J	0.12J	0.19J	5	84[3]
Phenanthrene	0.13J	0.26J	2.2	<0.42	2.4	11.0D	0.37J	0.33J	0.92	2.6	11,000	NSA
Pyrene	1.5	0.86	2.5	<0.42	6.4D	13.0D	0.88	1.5	2.6	0.22J	220	4,200[4]
Inorganics:												
Aluminum	12300	14300	12600	15500	10500	7900	10500	8930	11000	6700	190,000	1,000,000[4]
Antimony	<0.46	0.61B	<0.52	<0.51	<0.48	0.93B	<0.52	<0.54	<0.57	<0.53	27	5[3]
Arsenic	4.5	8.8	38.5	10.3	8.6	9.0	8.8	9.7	9.8	14.5	53	3.8[4]
Barium	57.3	59.9	54.9	62.8	76.1	58.9	37.6B	55.4	91.8	42.9B	8,200	1,600[3]
Beryllium	0.58B	0.88B	0.72B	0.81B	0.65B	0.54B	0.67B	0.71B	1.2B	5.5	18	1.3[4]
Cadmium	<0.14	<0.16	0.64B	<0.15	0.22B	0.50B	0.17B	0.17B	0.28B	0.53B	38	8[3]
Calcium	25500	2100	25000	1600	23900	7920	3330	2040	13700	1490	NSA	NSA
Chromium	17.5	27.0	21.8	31.3	22.5	24.3	23.8	17.3	25.6	12.8	190,000	1,000,000[4]
Cobalt	5.8B	7.2B	4.9B	6.4B	6.2B	5.4B	6.8B	5.3B	16.8	54.8	610	120,000[4]
Copper	12.1	24.6	28.7	27.7	19.2	25.9	27.5	13.5	37.4	45.4	36,000	1,000,000[4]
Iron	14600	26700	15300	29400	22200	16000	22000	15600	43000	54400	190,000	610,000[4]
Lead	13.9	26.8	96.8	29.5	31.7	80.2	34.5	43.3	48.7	57.5	450	400[5]
Magnesium	17300	2190	6570	2110	13100	4570	2940	1380	9790	1360	NSA	NSA
Manganese	139	155	269	156	190	214	163	139	397	802	130,000	47,000[4]
Mercury	<0.11	<0.13	1.0	<0.13	<0.12	<0.13	<0.13	0.40	<0.14	0.19	10	610[4]
Nickel	10	11.8	11.7	12.5	9.7	10.5	10.9	9.4B	25.8	80.0	650	130[3]
Potassium	2220	598B	670B	668B	1110B	749B	590B	277B	1940	472B	NSA	NSA
Selenium	<0.62	2.7	4.5	0.82B	1.2	0.86B	1.1B	1.6	4.0	1.9	26	5[3]
Silver	<0.14	<0.16	<0.16	<0.15	<0.14	<0.15	<0.16	<0.16	<0.17	<0.16	84	10,000[4]

TABLE 1 - CONTINUED

SUMMARY OF ANALYTICAL RESULTS FOR
SURFACE SOIL SAMPLES COLLECTED ALONG THE PIPE LINE ON THE YELLOW PARCEL

ANALYTICAL PARAMETERS	SAMPLE DESIGNATION/ANALYTICAL RESULTS										PADEP MSC[2]	USEPA RBC
	YSS-1	YSS-2	YSS-3	YSS-4	YSS-5	YSS-6	YSS-7	YSS-8	YSS-9	YSS-10		
Sodium	231B	105B	204B	154B	289B	186B	94.8B	121B	156B	<52.5	NSA	NSA
Thallium	**1.9B**	**1.3B**	**0.82B**	**0.73B**	**1.3B**	**1.3B**	**0.96B**	**0.86B**	**1.5B**	**0.84B**	14	0.7[3]
Vanadium	26.3	41.9	32.7	45.3	36.5	32.9	37.9	26.7	36.5	19.8	160	6,000[3]
Zinc	51.0	87.2	148	103	85.9	145	80.2	90.9	206	390	12,000	12,000[3]
Cyanide	<1.1	<1.3	4.2	<1.2	<1.2	<1.2	<1.3	<1.3	9.2	<1.3	200	40[6]

Notes:

(1) - All results are in parts per million

(2) - Pennsylvania Department of Environmental Protection, Land Recycling and Environmental Remediation Standards Act, Medium Specific Concentrations, August 16, 1997. The most stringent of the Non-Residential Direct Contact or Soil to Ground Water MSCs are shown.

(3) - United States Environmental Protection Agency, Soil Screening Guidance: Technical Background Document, May 1996. Migration to Ground Water (20 DAF) soil screening levels.

(4) - United States Environmental Protection Agency, Superfund Technical Support Section, EPA Region III Risk-Based Concentration Table, October 22, 1997

(5) - The RBC for lead was set by the USEPA based on the document entitled "Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities (USEPA, 1994)"

(6) - This RBC is for amenable cyanide using the migration to ground water (20 DAF) scenario included in the May 1996 Technical Background Document referenced in footnote 3 above.

PADEP - Pennsylvania Department of Environmental Protection

MSC - Medium Specific Concentrations

USEPA - United States Environmental Protection Agency

RBC - Risk-Based Concentrations

J - Compound was detected below the method detection limit

ND - Not detected

<0.12 - Compound was not detected above the method detection limit shown

B - The result is between the estimated quantitation limit and the instrument detection limit

NSA - No Standard Available

PAHs - Polynuclear Aromatic Hydrocarbons

Bold - Compound was detected above either its PADEP MSC or USEPA RBC

TABLE 2

SUMMARY OF ANALYTICAL RESULTS FOR
SOIL SAMPLES OBTAINED BENEATH THE PIPE LINE ON THE YELLOW PARCEL

ANALYTICAL PARAMETERS	SAMPLE DESIGNATION/ANALYTICAL RESULTS										PADEP MSC[2]	USEPA RBC
	YUP-1	YUP-2	YUP-3	YUP-4	YUP-5	YUP-6	YUP-7	YUP-8	YUP-9[7]	YUP-11		
PAHs:												
Acenaphthene	<0.41	<0.42	<0.39	<0.48	<0.41	<0.42	<22	<0.4	<0.42	0.099J	4,300	570
Acenaphthylene	<0.41	2.5	0.041J	2.2JD	<0.41	<0.42	14J	0.05J	0.067J	0.35J	4,400	NSA
Anthracene	<0.41	0.89	<0.39	1.5	<0.41	<0.42	11J	<0.4	<0.42	0.19J	230	12,000
Benzo(a)anthracene	<0.41	4.8D	<0.39	3.4JD	0.084J	<0.42	54	0.068J	0.074J	0.86	110	2.0
Benzo(b)fluoranthene	<0.41	9.9D	0.14J	10D	0.12J	0.11J	78	0.16J	0.2J	1.5	110	5
Benzo(k)fluoranthene	<0.41	3.4	<0.39	3.6	<0.41	<0.42	22	0.056J	0.059J	0.47	600	49
Benzo(g,h,i)perylene	<0.41	2.6B	0.17JB	3.8B	0.16JB	0.13JB	41B	0.098JB	0.2JB	1.1B	180	NSA
Benzo(a)pyrene	<0.41	8DB	0.1JB	8.9BD	0.097JB	0.084JB	67B	0.12JB	0.17JB	1.2B	11	0.78
Chrysene	<0.41	5.3D	0.047J	3.9JD	0.071J	<0.42	50	0.074J	0.076J	0.92	220	160
Dibenzo(a,h)anthracene	<0.41	1.7	<0.39	1.7	<0.41	<0.42	17J	<0.4	0.059J	0.37J	11	0.78
Fluoranthene	<0.41	4.5D	<0.39	3.8	0.14J	<0.42	87	0.053J	0.072J	1.1	3,300	4,300
Fluorene	<0.41	0.13J	<0.39	0.19J	<0.41	<0.42	<22	<0.4	<0.42	0.08J	380	560
Indeno(1,2,3-cd)pyrene	<0.41	7.6D	0.16J	15D	0.12J	0.13J	51	0.12J	0.22J	1.2	110	7.8
Naphthalene	<0.41	0.23J	0.063J	2.4JD	<0.41	<0.42	<22	0.05J	<0.42	0.15J	5	84
Phenanthrene	<0.41	0.44	<0.39	1.2	0.11J	<0.42	14J	<0.4	<0.42	0.47	11,000	NSA
Pyrene	<0.41	5.2D	0.043J	2.5	0.12J	<0.42	63	0.055J	0.073J	0.81	220	4,200
Inorganics:												
Aluminum	16500	18500	3390	27700	9490	14400	13200	12300	7550	9000	190,000	1,000,000[4]
Antimony	<0.50	<0.51	<0.47	<0.58	<0.49	<0.50	<0.54	<0.48	<0.51	<0.48	27	5[3]
Arsenic	5.9	44.8	5.8	146	7.7	15.8	34.3	16.5	9.6	6.6	53	3.8[4]
Barium	48.2B	73.2	13.8B	104	37.4B	49.6B	33.9B	34.0B	31.0B	489	8,200	1,600[3]
Beryllium	0.67B	0.95B	0.19B	1.5	0.61B	0.74B	0.68B	0.74B	0.52B	0.54B	18	1.3[4]
Cadmium	<0.15	<0.15	<0.14	0.92B	<0.15	<0.15	<0.16	<0.14	<0.15	0.26B	38	8[3]
Calcium	1480	4360	1820	32600	4590	8120	40400	1850	7450	2420	NSA	NSA
Chromium	43.9	27.3	7.7	32.3	22.7	25.4	21.8	25.0	22.7	13.6	190,000	1,000,000[4]
Cobalt	5.2B	8.3B	1.3B	7.0B	5.2B	7.1B	5.5B	5.7B	4.8B	3.8B	610	120,000[4]
Copper	36.3	32.5	4.6B	46.2	15.8	26.8	21.9	18.5	17.5	20.9	36,000	1,000,000[4]
Iron	26800	28800	6070	23400	21000	31500	23700	24900	23000	12200	190,000	610,000[4]
Lead	16.4	48.3	6.9	130	11.4	17.4	416	24.8	11.0	53.1	450	400[5]
Magnesium	1720	2280	333B	7790	1400	2260	2170	1900	1400	1370	NSA	NSA
Manganese	57.6	274	44.8	441	85.2	173	174	91.6	153	144	130,000	47,000[4]
Mercury	<0.12	0.88	0.21	4.7	<0.12	0.20	2.2	0.28	<0.13	<0.12	10	610[4]
Nickel	11.3	14.3	1.7B	20.0	7.2B	11.6	10.3B	10.8	7.2B	7.3B	650	130[3]
Potassium	822B	973B	146B	1840	428B	696B	633B	554B	309B	297B	NSA	NSA
Selenium	1.2	4.4	<0.63	15.7	0.84B	2.4	17.1	3.4	2.8	<0.65	26	5[3]
Silver	<0.15	<0.15	<0.14	<0.18	<0.15	<0.15	<0.16	<0.14	<0.15	<0.14	84	10,000[4]

TABLE 2 - CONTINUED

SUMMARY OF ANALYTICAL RESULTS FOR SOIL SAMPLES OBTAINED BENEATH THE PIPE LINE ON YELLOW PARCEL

ANALYTICAL PARAMETERS	SAMPLE DESIGNATION/ANALYTICAL RESULTS										PADEP MSC[2]	USEPA RBC
	YUP-1	YUP-2	YUP-3	YUP-4	YUP-5	YUP-6	YUP-7	YUP-8	YUP-9[7]	YUP-11		
Sodium	122B	173B	109B	181B	131B	224B	163B	144B	118B	86.4B	NSA	NSA
Thallium	**1.1B**	**0.91B**	<0.63	**1.7B**	**1.2B**	**0.94B**	**0.92B**	**1.0B**	<0.69	<0.65	14	0.7[3]
Vanadium	51.9	38.1	15.4	42.1	39.8	40.7	33.7	37.9	36.0	26.6	160	6,000[3]
Zinc	64.9	113	19.6	469	49.4	57.4	76.8	61.3	35.5	146	12,000	12,000[3]
Cyanide	1.77	2.00	<1.17	4.59	<1.23	2.60	8.74	<1.20	<1.28	<1.18	200	40[6]

Notes:

(1) - All results are in parts per million

(2) - Pennsylvania Department of Environmental Protection, Land Recycling and Environmental Remediation Standards Act, Medium Specific Concentrations, August 16, 1997. The most stringent of the Non-Residential Direct Contact or Soil to Ground Water MSCs are shown.

(3) - United States Environmental Protection Agency, Soil Screening Guidance: Technical Background Document, May 1996. Migration to Ground Water (20 DAF) soil screening levels.

(4) - United States Environmental Protection Agency, Superfund Technical Support Section, EPA Region III Risk-Based Concentration Table, October 22, 1997

(5) - The RBC for lead was set by the USEPA based on the document entitled "Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities (USEPA, 1994)"

(6) - This RBC is for amenable cyanide using the migration to ground water (20 DAF) scenario included in the May 1996 Technical Background Document referenced in footnote 3 above.

(7) - This is a duplicate sample collected at YUP-6

PADEP - Pennsylvania Department of Environmental Protection

MSC - Medium Specific Concentrations

USEPA - United States Environmental Protection Agency

RBC - Risk-Based Concentrations

J - Compound was detected below the method detection limit

ND - Not detected

<0.12 - Compound was not detected above the method detection limit shown

B - The result is between the estimated quantitation limit and the instrument detection limit

NSA - No Standard Available

PAHs - Polynuclear Aromatic Hydrocarbons

Bold - Compound was detected above either its PADEP MSC or USEPA RBC

TABLE 3

SUMMARY OF ANALYTICAL RESULTS FOR
SAMPLE YUP-10 TAKEN UNDER THE PIPE LINE ON THE YELLOW PARCEL

ANALYTICAL PARAMETERS	SAMPLE DESIGNATION/ ANALYTICAL RESULTS YUP-10	PADEP MSC[2]	USEPA RBC
Volatile Organics:			
Methylene Chloride	0.1JB	0.5	0.02[3]
Benzene	0.047J	0.5	0.03[3]
Toluene	0.3	100	12[3]
Ethylbenzene	0.18	70	13[3]
Styrene	0.16	24	4[3]
Total Xylenes	0.52	1,000	190[3]
Total TIC	41.62	NSA	NSA
Semivolatile Organics:			
Naphthalene	6400D	5	84[3]
2-Methylnaphthalene	210	10,000	NSA
Acenaphthylene	970D	4,400	NSA
Acenaphthene	62	4,300	520[3]
Dibenzofuran	420JD	NSA	8,300[4]
Fluorene	480JD	380	560[3]
Phenanthrene	2000D	11,000	NSA
Anthracene	480JD	230	12,000[3]
Carbazole	260	NSA	0.6[3]
Fluoranthene	1500D	3,300	4,300[3]
Pyrene	950D	220	4,200[3]
Benzo(a)anthracene	430JD	110	2[3]
Chrysene	260	220	160[3]
Benzo(b)fluoranthene	420JD	110	5[3]
Benzo(k)fluoranthene	94	600	49[3]
Benzo(a)pyrene	390JBD	11	0.78[4]
Indeno(1,2,3-cd)pyrene	180	110	84[3]
Dibenz(a,h)anthracene	48	11	0.78[4]
Benzo(g,h,i)perylene	140B	180	NSA
Inorganics:			
Aluminum	5520	190,000	1,000,000[4]
Antimony	<0.49	27	5[3]
Arsenic	9.8	53	3.8[4]
Barium	41.0B	8,200	1,600[3]
Beryllium	1.9	18	1.3[4]
Cadmium	0.44B	38	8[3]
Calcium	7660	NSA	NSA
Chromium	9.1	190,000	1,000,000[4]
Cobalt	11.2B	610	120,000[4]
Copper	35.2	36,000	1,000,000[4]
Iron	19800	190,000	610,000[4]
Lead	55.8	450	400[5]
Magnesium	2980	NSA	NSA
Manganese	425	130,000	47,000[4]
Mercury	1.3	10	610[4]
Nickel	22.9	650	130[3]
Potassium	274B	NSA	NSA
Selenium	0.80B	26	5[3]

TABLE 3 - CONTINUED

SUMMARY OF ANALYTICAL RESULTS FOR SAMPLE YUP-10 TAKEN UNDER THE PIPE LINE ON THE YELLOW PARCEL

ANALYTICAL PARAMETERS	SAMPLE DESIGNATION/ ANALYTICAL RESULTS YUP-10	PADEP MSC[2]	USEPA RBC
Silver	<0.15	84	10,000[4]
Sodium	54.7B	NSA	NSA
Thallium	**1.0B**	14	0.7[3]
Vanadium	14.2	160	6,000[3]
Zinc	153	12,000	12,000[3]
Cyanide	**185**	200	40[6]

Notes:

(1) - All results are in parts per million

(2) - Pennsylvania Department of Environmental Protection, Land Recycling and Environmental Remediation Standards Act, Medium Specific Concentrations, August 16, 1997. The most stringent of the Non-Residential Direct Contact or Soil to Ground Water MSCs are shown.

(3) - United States Environmental Protection Agency, Soil Screening Guidance: Technical Background Document, May 1996. Migration to Ground Water (20 DAF) soil screening levels.

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(6) - This RBC is for amenable cyanide using the migration to ground water (20 DAF) scenario included in the May 1996 Technical Background Document referenced in footnote 3 above.

PADEP - Pennsylvania Department of Environmental Protection

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RBC - Risk-Based Concentrations

J - Compound was detected below the method detection limit

ND - Not detected

<0.12 - Compound was not detected above the method detection limit shown

B - The result is between the estimated quantitation limit and the instrument detection limit

NSA - No Standard Available

Bold - Indicates compound was detected above either its PADEP MSC or USEPA RBC

TABLE 4

SUMMARY OF ANALYTICAL RESULTS FOR
SEDIMENT SAMPLES OBTAINED AT THE LPT YELLOW PARCEL

ANALYTICAL PARAMETERS	SAMPLE DESIGNATION/ANALYTICAL RESULTS																PADEP MSC	USEPA RBC
	SED-1	SED-2	SED-3	SED-4	SED-5	SED-6	SED-7	SED-8	SED-9	SED-10	SED-11	SED-12	SED-13	SED-14	SED-15	SED-16[7]		
PAHs:																		
Acenaphthene	0.059J	<0.48	<0.46	<0.51	0.16J	<0.43	<0.38	<0.46	<0.39	<0.42	<0.44	<0.52	<0.42	<0.67	<0.44	<0.44	4,300	570[3]
Acenaphthylene	0.69	0.12J	0.56	0.08J	1.5	<0.43	<0.38	<0.46	<0.39	<0.42	<0.44	0.066J	1.2	0.14J	<0.44	<0.44	4,400	NSA
Anthracene	1.7	0.095J	0.73	0.85J	6.1JD	<0.43	<0.38	<0.46	<0.39	<0.42	<0.44	0.087J	0.64	0.16J	<0.44	<0.44	230	12,000[3]
Benzo(a)anthracene	6.2JD	0.74	5.4D	0.52	10D	0.25J	<0.38	0.054J	<0.39	0.081J	0.059J	0.44J	0.92	1.1	0.27J	0.061J	110	2.0[3]
Benzo(b)fluoranthene	7.5JD	1.2	7.4D	0.71	10D	0.44	0.046J	0.082J	<0.39	0.12J	0.086J	0.52J	1.6	1.8	0.38J	0.1J	110	5[3]
Benzo(k)fluoranthene	1.1	0.37J	1.4	0.19J	2.8	0.11J	<0.38	<0.46	<0.39	<0.42	<0.44	0.16J	0.4J	0.46J	0.15J	<0.44	600	49[3]
Benzo(g,h,i)perylene	2.5	0.74	2.3	0.43J	4.8JD	0.35J	<0.38	<0.46	<0.39	0.059J	<0.44	0.38J	2.6	1.2	0.3J	0.072J	180	NSA
Benzo(a)pyrene	4.4D	0.86	4.9D	0.51J	8JD	0.32J	<0.38	0.055J	<0.39	0.094J	0.062J	0.41J	1.2	1.4	0.31J	0.074J	11	0.78[4]
Chrysene	6.2D	0.75	3.6	0.51	8.9JD	0.26J	<0.38	0.06J	<0.39	0.09J	0.054J	0.46J	0.85	1.2	0.27J	0.073J	220	160[3]
Dibenzo(a,h)anthracene	1.3	0.18J	0.95	0.092J	1.8	0.062J	<0.38	<0.46	<0.39	<0.42	<0.44	0.12J	0.56	0.35J	0.076J	<0.44	11	0.78[4]
Fluoranthene	15D	1.3	11D	0.92	23D	0.19J	0.061J	0.077J	<0.39	0.12J	0.082J	0.69	2.1	1.6	0.39J	0.091J	3,300	4,300[3]
Fluorene	0.41J	<0.48	<0.46	<0.51	2.3	<0.43	<0.38	<0.46	<0.39	<0.42	<0.44	<0.52	0.12J	0.093J	<0.44	<0.44	380	560[3]
Indeno(1,2,3-cd)pyrene	3.4	0.68	2.9	0.31J	5.4D	0.2J	<0.38	<0.46	<0.39	0.062J	<0.44	0.4J	2.6	1.3	0.28J	0.065J	110	7.8[4]
Naphthalene	0.47	<0.48	0.091J	<0.51	0.18	<0.43	<0.38	<0.46	<0.39	<0.42	<0.44	<0.52	0.24J	0.14J	<0.44	<0.44	5	84[3]
Phenanthrene	8.1JD	0.27J	3.2	0.22J	15D	<0.43	<0.38	<0.46	<0.39	<0.42	<0.44	0.26J	0.82	0.6J	0.11J	<0.44	11,000	NSA
Pyrene	9.7D	1.1	8.9D	0.81	18D	0.2J	0.055J	0.073J	<0.39	0.11J	0.074J	0.61	2	1.3	0.33J	0.08J	220	4,200[4]
Inorganics:																		
Aluminum	6120	16700	19100	17400	6520	4790	1180	8510	2680	8260	4970	4300	2370	8780	4240	6230	190,000	1,000,000[4]
Antimony	<0.56	<0.58	<0.56	<0.62	<0.55	<0.52	<0.46	<0.56	<0.47	<0.51	<0.54	<0.63	<0.51	3.0B	<0.54	0.93B	27	5[3]
Arsenic	7.0	11.3	10.5	6.7	8.2	6.8	1.0B	12.8	10.9	8.8	5.8	4.4	7.9	8.0	5.5	8.5	53	3.8[4]
Barium	67.7	100	105	186	48.6B	68.8	7.3B	74.8	9.3B	57.0	34.0B	33.8B	39.1B	62.4B	34.9B	53.2	8,200	1,600[3]
Beryllium	1.0B	1.6	1.4	1.3B	0.49B	2.2	0.086B	1.4	1.2	1.3	1.2B	0.77B	2.5	2.0	1.0B	1.2B	18	1.3[4]
Cadmium	0.58B	0.33B	0.34B	0.32B	0.45B	<0.16	<0.14	<0.17	<0.14	0.39B	0.24B	<0.19	1.1B	0.60B	0.20B	0.40B	38	8[3]
Calcium	24700	6740	13800	9830	4740	1210B	317B	6470	441B	7280	5930	3080	49700	3100	2530	7760	NSA	NSA
Chromium	16.2	36.6	42.6	35.5	16.2	12.7	5.6	44.0	14.0	16.7	12.7	11.4	7.9	24.5	11.6	14.3	190,000	1,000,000[4]
Cobalt	10.4B	15.5	12.9B	18.2	6.3B	45.4	1.3B	16.4	18.2	13.6	11.2B	10.4B	24.8	12.7B	16.1	13.1B	610	120,000[4]
Copper	61.3	42.4	42.4	42.9	21.0	72.6	5.0B	87.5	27.9	35.4	22.7	24.6	35.7	77.9	33.4	32.7	36,000	1,000,000[4]
Iron	20300	41000	41900	40200	19700	56900	4470	90900	50300	29800	20800	21400	16900	32500	28900	28300	190,000	610,000[4]
Lead	94.4	69.3	53.2	70.1	50.2	80.7	15.6	327	20.7	89.0	33.4	26.4	88.3	260	41.1	86.4	450	400[3]
Magnesium	14700	6520	9750	10100	2830	919B	165B	4590	364B	4410	3710	2320	21500	1600B	1950	4620	NSA	NSA
Manganese	343	439	278	500	136	859	30.8	1010	150	444	352	161	539	220	302	428	130,000	47,000[4]
Mercury	0.61	<0.15	<0.14	<0.15	<0.14	<0.13	<0.12	<0.14	<0.12	<0.13	<0.13	<0.16	0.35	<0.20	<0.13	<0.13	10	610[4]
Nickel	16.0	24.9	23.1	25.2	10.0B	43.5	1.2B	29.6	22.9	21.6	15.8	14.6	29.5	24.7	20.7	20.4	650	130[3]
Potassium	1230B	1780	1750	4460	763B	408B	137B	788B	232B	785B	455B	631B	360B	591B	513B	603B	NSA	NSA
Selenium	2.3	0.95B	0.85B	<0.83	1.8	0.92B	<0.62	8.0	1.1B	1.1B	<0.73	<0.86	5.0	5.5	0.80B	<0.72	26	5[3]

TABLE 4 - CONTINUED

SUMMARY OF ANALYTICAL RESULTS FOR
SEDIMENT SAMPLES TAKEN AT THE LPT YELLOW PARCEL

ANALYTICAL PARAMETERS	SAMPLE DESIGNATION/ANALYTICAL RESULTS																PADEP MSC	USEPA RBC
	SED-1	SED-2	SED-3	SED-4	SED-5	SED-6	SED-7	SED-8	SED-9	SED-10	SED-11	SED-12	SED-13	SED-14	SED-15	SED-16[7]		
Silver	<0.17	<0.18	<0.17	<0.18	<0.17	<0.16	<0.14	0.48B	<0.14	<0.15	<0.16	<0.19	<0.15	<0.24	<0.16	<0.16	84	10,000[4]
Sodium	205B	192B	290B	308B	<54.6	<51.4	55.7B	<55.2	<46.5	123B	106B	168B	<50.6	<80.5	<52.9	65.6B	NSA	NSA
Thallium	<0.76	1.4B	1.3B	3.0B	<0.75	1.2B	<0.62	3.6	0.87B	<0.69	1.1B	<0.86	<0.69	<1.1	<0.72	<0.72	14	0.7[3]
Vanadium	25.6	58.7	63.0	59.6	26.0	19.7	9.2B	61.4	12.8	26.3	19.2	17.6	12.6B	47.1	18.2	23.8	160	6,000[3]
Zinc	284	302	197	330	138	425	36.1	1420	218	214	126	135	254	404	182	216	12,000	12,000[3]
Cyanide	<1.4	8.7	2.4	<1.5	<1.3	<1.3	<1.1	5.4	<1.1	<1.2	<1.3	2.0	3.3	<2.0	<1.3	<1.3	200	40[6]

Notes:

(1) - All results are in parts per million

(2) - Pennsylvania Department of Environmental Protection, Land Recycling and Environmental Remediation Standards Act, Medium Specific Concentrations, August 16, 1997. The most stringent of the Non-Residential Direct Contact or Soil to Ground Water MSCs are shown.

(3) - United States Environmental Protection Agency, Soil Screening Guidance: Technical Background Document, May 1996. Migration to Ground Water (20 DAF) soil screening levels.

(4) - United States Environmental Protection Agency, Superfund Technical Support Section, EPA Region III Risk-Based Concentration Table, October 22, 1997

(5) - The RBC for lead was set by the USEPA based on the document entitled "Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities (USEPA, 1994)"

(6) - This RBC is for amenable cyanide using the migration to ground water (20 DAF) scenario included in the May 1996 Technical Background Document referenced in footnote 3 above.

(7) - This is a duplicate of Sed-10

PADEP - Pennsylvania Department of Environmental Protection

MSC - Medium Specific Concentrations

USEPA - United States Environmental Protection Agency

RBC - Risk-Based Concentrations

J - Compound was detected below the method detection limit

ND - Not detected

<0.12 - Compound was not detected above the method detection limit shown

B - The result is between the estimated quantitation limit and the instrument detection limit

NSA - No Standard Available

PAHs - Polynuclear Aromatic Hydrocarbons

Bold - Compound was detected above either its PADEP MSC or USEPA RBC